

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/034096 A3

(51) International Patent Classification⁷: **G02B 6/00**

(21) International Application Number:
PCT/US2003/031266

(22) International Filing Date: 3 October 2003 (03.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/416,007 4 October 2002 (04.10.2002) US
60/463,295 16 April 2003 (16.04.2003) US
60/465,150 24 April 2003 (24.04.2003) US

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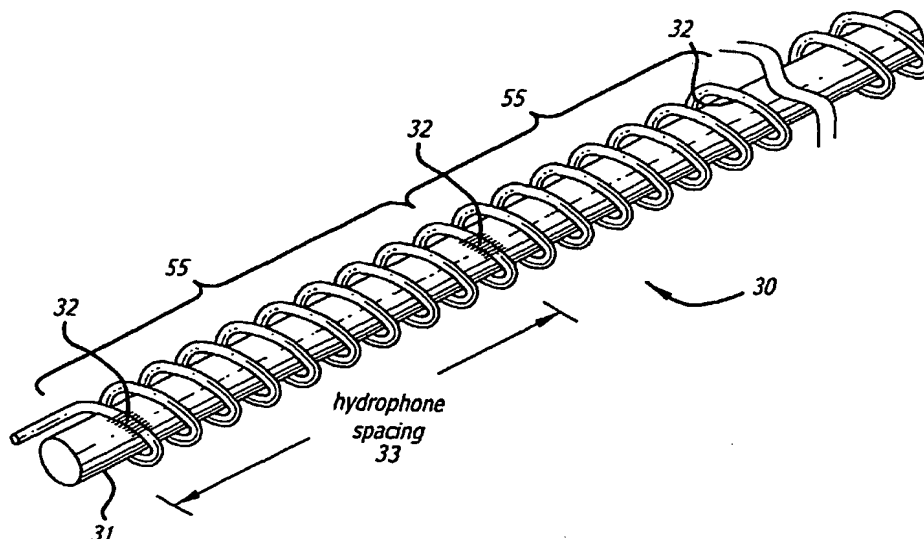
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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: **RUGGED FIBER OPTIC ARRAY**



(57) Abstract: An array of fiber optic hydrophones (30) is formed by winding of optical fiber around a continuous, yet flexible cylindrical core (31). The cylindrical core contains an elastomer filled with a specified percentage of voided plastic microspheres. The elastomer provides the necessary radial support of the optical fiber and with the included voided microspheres, provides sufficient radial compliance under acoustic pressure. The cylindrical core can be made in very long sections allowing a plurality of hydrophones to be wound onto it using a single optical fiber, with individual hydrophone elements separated by internal reflectors such as Fiber Bragg Gratings (32). The center of the core may include a strength member and a central hollow tube for the passing of additional optical fibers. The aforementioned hydrophone array is then packaged within a protective outer coating or coatings as required for the specified application.

WO 2004/034096 A3



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

17 June 2004

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/31266

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 6/00

US CL : 385/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 385/12, 13, 103, 104, 108

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X | US 6,211,964 B1 (LUSCOMBE et al) 03 April 2001 (03.04.2001), abstract, Column 3, line3 - Column 8, line 17, figures 4A and 5A | 1-39 |
| X | US 4,468,091 A (SCHMADEL et al) 28 August 1984 (28.08.1984), Abstract, Figure 10, Column 2, lines 65-68, Column 7, lines 25-28, Column 8, lines 29-32 | 1, 8-14, 22-23 |
| A | US 4,444,460 A (STOWE) 24 April 1984 (24.04.1984), Figure 12 | 14-15 |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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document member of the same patent family

Date of the actual completion of the international search

03 February 2004 (03.02.2004)

Date of mailing of the international search report

19 APR 2004

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INTERNATIONAL SEARCH REPORT

PCT/US03/31265

Continuation of B. FIELDS SEARCHED Item 3:

USPTO "EAST" searched

Search terms: acoustic, sensor, optical, fiber, grating